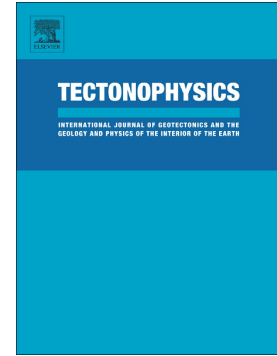


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Spatial variations of seismic attenuation in the North West of Iranian plateau from analysis of coda waves

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Abstract

In this study, spatial variation of coda wave attenuation in the north western (NW) Iranian Plateau are explored using local earthquakes. Single backscattering method is used to map the spatial variations of coda Q (Q_c) using 14969 earthquakes which are recorded digitally by sixteen permanent stations. Observed spatial attenuation maps are well correlated with geological setting of study area. North West of Iranian plateau is dominated with high attenuation which is well correlated with Quaternary deposits as well as the Sahand, Sabalan volcanic zone and Tabriz fault. These observation is in accordance with numerous 2D velocity tomograms which have shown very low velocity in the NW Iran. The region characterized by volcanic structures exhibits mainly higher seismic attenuation than the surrounding regions whereas, Paleo Tethys basin in the eastern part of covered area are categorized by smaller attenuation than the other zone. Our observation shows good correlation with reported lower crustal low-velocity region beneath the Sahand and Sabalan volcanos. The Sahand and Sabalan volcanoes are very large structures and they dominate the Pliocene-Quaternary magmatic landscape of NW Iran. In addition, our observation has clearly shown existence of a probable fault zone

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